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ULTRASOUND-DETECTED OSTEOPHYTES PREDICT INCIDENT RADIOGRAPHIC HAND OSTEOARTHRITIS AND PAIN FIVE YEARS LATER

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Purpose: A cross-sectional study has shown that ultrasound (US) is more sensitive than conventional radiography (CR) in detecting small osteophytes in joints with hand osteoarthritis (OA). Osteophytes can be seen prior to joint space narrowing (JSN), may be an early risk factor for OA progression, and is associated with pain. However, previous studies on the predictive value of osteophytes on disease progression and pain is limited in number, have shown inconsistent results, and none of these have included US.
Hence, the aim of this longitudinal study was to examine whether US-detected osteophytes in joints with concurrent normal CR and no joint tenderness at baseline could predict incident radiographic hand OA and joint tenderness five years later.
Methods: We included 78 participants (71 women, mean (SD) age 67.8 (5.2) years) from the Oslo hand OA cohort with US examination at baseline, and CR and clinical examination both at baseline and 5-year follow-up.
US was performed by two readers who together gained consensus for presence of osteophytes (scored semi-quantitatively (0-3) for increasing size) in 20 finger joints (the first carpometacarpal joint, the 1st-5th proximal and 2nd-5th distal interphalangeal joints bilaterally). One reader scored the radiographs with known time sequence according to the Kellgren-Lawrence (KL) scale and the Osteoarthritis Research Society International (OARSI) atlas for osteophytes (0-3 scale) and joint space narrowing (JSN, 0-3 scale). An experienced rheumatologist examined the same joints for absence/presence of tenderness upon palpation at baseline and follow-up.
Associations between baseline US-detected osteophytes (independent variable) and incident radiographic OA features five years later (dependent variables) were explored only in joints without radiographic OA (i.e. KL grade = 0, no osteophytes and no JSN) at baseline by use of Generalized Estimating Equations (GEE), expressed as odds ratio (OR) with 95% confidence intervals (CI). In addition, in radiographic normal joints where there was no tenderness at baseline, we explored whether US-detected osteophytes could predict incident joint tenderness. Analyses were adjusted for age, sex, body mass index and follow-up time. The analyses on erosive development were additionally adjusted for absence/presence of other erosive joints in the same patient at baseline.
Results: Mean (SD) follow-up time was 4.7 (0.4) years. At baseline, 1218/1643 (74.1%) of the total number of assessed joints had ultrasound-detected osteophytes. In total 301 joints were assessed as being normal on CR, of which 86 had concurrent osteophytes detected by US. Most of these osteophytes (79.1%) were small (score 1).
US-detected osteophytes at baseline was a strong predictor for incident radiographic OA during follow-up (table). The strongest association was seen for incident JSN (OR=5.3, 95% CI 2.1-13.4). In addition, a significant association was found between US-detected osteophytes at baseline and the occurrence of tenderness by joint palpation at follow-up (OR=1.9, 95% CI 1.1-3.3).
Conclusions: For the first time, we were able to show that ultrasound-detected osteophytes were a strong predictor for the development of radiographic OA as well as tenderness at joint level after 5-years follow-up. These results support the use of ultrasound as a promising tool for early detection of hand OA.

Table
Ultrasound-detected osteophytes as predictor for development of osteoarthritis 5 years later.

Baseline ultrasound osteophytes	Incident OA features at follow-up, n (%)*	Odds ratio (95% CI)	
		Crude	Adjusted†
	Global OA (Kellgren-Lawrence)		
Grade 0 (n=215)	37 (17.2)	1.0	1.0
Grade 1-3 (n=86)	40 (46.5)	2.9 (1.6-5.4)	4.1 (2.0-8.1)
	Radiographic joint space narrowing		
Grade 0 (n=215)	9 (4.2)	1.0	1.0
Grade 1-3 (n=86)	15 (17.4)	4.2 (1.8-10.2)	5.3 (2.1-13.4)
	Radiographic osteophytes		
Grade 0 (n=215)	28 (13.0)	1.0	1.0
Grade 1-3 (n=86)	31 (36.0)	2.9 (1.6-5.4)	4.2 (2.1-8.5)
	Tenderness		
Grade 0 (n=190)	31 (16.3)	1.0	1.0
Grade 1-3 (n=62)	19 (30.6)	1.5 (0.9-2.7)	1.9 (1.1-3.3)

Generalized Estimating Equations presented as odds ratios for new OA features at follow-up with separate models for each radiographic and clinical feature. CI=confidence interval.
*Number and percentage of joints with/without incident OA.
†Adjusted for age, sex, body mass index, follow-up time.

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DOES MRI ADD TO THE PREDICTION OF RECOVERY IN LOW BACK PAIN PATIENTS IN GENERAL PRACTICE?

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Purpose: Information on the prognostic value of MRI findings could be useful to better inform patients with low back pain (LBP) about their prognosis. However, the prognostic value of MRI findings has mainly been studied in patients with sciatica and these results may differ from studies performed in patients with LBP in general practice. The objective of this study is to investigate the added prognostic value of baseline MRI findings over known prognostic factors for recovery at 12-month follow-up in patients with LBP referred to MRI by their general practitioner.
Methods: Observational prospective cohort study with a 12-month follow-up. Patients (aged ≥ 18 years) referred by their general practitioner for MRI of the lumbar spine were recruited. The questionnaires at baseline and at 3 and 12-months follow-up included potential clinical predictors from history taking and the outcome. The MRI radiology reports were scored for the presence of bulging, disc herniation, nerve root compression, spinal stenosis, spondylolisthesis and serious pathologies. The primary outcome was recovery measured with the Global Perceived Effect scale.
Results: Pain severity of the patients (n=683) decreased from a mean of 6.6 (SD 2.0) at baseline to 3.8 (SD 2.6) at 3-months follow-up and to 3.8 (SD 2.8) at 12-months follow-up. At 12-months follow-up 53% of the patients reported recovery. Lower age, better attitude/beliefs regarding back pain, acute back pain, presence of neurological symptoms of the leg(s), and presence of non-continuous back pain were significantly associated with recovery at 12-months follow-up: area under the curve (AUC) 0.77. Addition of the MRI findings resulted in an AUC of 0.78.
Conclusions: At 12-months follow-up, only 53% of these patients with low back pain referred for MRI in general practice reported recovery. Five clinic baseline characteristics were associated with recovery at 12-months follow-up; adding the MRI findings did not result in a stronger prediction of recovery.